UNITED STATES DEPARTMENT OF AGRICULTURE
CONSERVATION PRACTICE STANDARD
INTERIM STANDARD

WASTE FIELD STORAGE

(No.)
CODE 749

DEFINITION

Field storage of animal manure/litter is the temporary stacking of poultry dry manure/litter outside under a non-structural cover in such a manner that the soil, water, air, plant, and animal resources are adequately protected.

PURPOSES

Field storage of animal manure/litter is used to temporarily stockpile manure/litter in an environmentally safe and cost-effective manner while providing improved nutrient utilization and conservation, and greater convenience and efficiency in the overall farm operation.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies where a waste management system has been planned in accordance with NRCS conservation practice standard, Waste Management System, Code 312 and where temporary storage of manure/litter is required by the plan to:

1. Facilitate split applications of manure/litter because land area is limited and split applications are required for proper nutrient management and water quality protection, or
2. Temporarily store poultry litter to be used for cattle feeding in order to maintain quality until used for feed, or
3. Temporarily store cleanout of animal housing units at times when manure/litter cannot be readily land applied due to weather, soil conditions, or farm management requirements, or
4. Temporarily store manure/litter until it is sold and or/and removed off-site.

The moisture content of the animal/litter must be low enough that stacking is practical.

This practice does not apply to NRCS conservation practice standard Waste Storage Facility, Code 313 or Waste Treatment Lagoon, Code 359.

CRITERIA

General. All planned work shall comply with all Federal, state, and local laws and regulations.

Location. Field storage of manure/litter shall be located as close to the source as practicable. In addition, it shall be located in areas that will minimize potential risk for contamination of water bodies and considering prevailing winds and landscape elements such as landform and vegetation to minimize odors and visual resource problems.

Field storage areas shall be located:

1. To minimize the potential for contamination of streams, waste storage facilities should be located outside of floodplains. However, if site restrictions require location within a floodplain, waste storage facilities shall be protected from inundation or damage from a 25-year, 24-hour storm event. Field storage of animal manure/litter shall be located with

respect to prevailing winds and landscape elements such as building arrangement, landforms, and vegetation, in order to minimize odors and protect aesthetic values.

2. Where year-round access to the manure storage will be practical during periods of wet weather.
3. Outside natural drainage ways.
4. A minimum of 150 feet from wells, springs, streams, and ponds or 300 feet from a well when the well is located down gradient from the storage area.
5. A minimum of 300 feet from neighboring residences or public areas.
6. Near natural windbreaks, where possible, to protect the covering from blowing wind and aid in odor control.

There shall be positive drainage away from the field storage area in all directions. Water management facilities such as diversions and/or waterways shall be provided where needed to divert surface water away form the field storage areas.

Covering. Field stacked manure shall be covered with opaque plastic or polyethylene sheeting having a minimum thickness of 6 mils or other waterproof covering. The sheeting must be placed over the pile with care to prevent tearing. Sheeting shall have a minimum of 24 inches of overlap. Weights or other tie down mechanisms shall be placed used to anchor the sheeting and prevent tearing during high winds.

The sheeting shall be anchored at the base of the stack with sufficient weights (such as tires, etc.) to hold the sheeting in place. In lieu of weights, sheeting may be securely attached to screw type anchors placed on 2-foot centers around the pad.

Size. Field storage areas shall be designed to store the manure/litter until it can be properly used as identified in the plan. The size required shall be based on the cleanout schedule. Manure/litter removed from any cleanout shall not be stored for more than 30 days before being utilized according to the waste management plan.

The size of the pad on which the manure/litter will be stored shall be determined on the basis of volume produced for the cleanout schedule and the anticipated height of the stack. Maximum height of stacking the manure/litter shall be 7 feet. A minimum of 4 feet of horizontal freeboard shall be allowed around the edges of the stack to properly anchor the covering and facilitate the removal of the manure/litter.

Field storage pad. Field storage of manure/litter shall be on reasonably impermeable pads to ensure protection of water resources. Pads may be constructed of soil, geomembrane, or concrete.

Soil pad. Soil pads shall be constructed of clayey material (SC, CL) and shall be a minimum of 1 foot thick. Soil pads shall be installed under optimum moisture conditions and compacted in 6 to 8 inch lifts. Soil pads shall not be used where the seasonal high water table will be less than 3 feet below the bottom of the stacked manure/litter.

Concrete pad. Concrete pads shall be constructed on a firm foundation and shall be a minimum of 5 inches in thickness. Concrete shall have a minimum compressive strength of 4000 psi and meet NRCS Construction Specification 32, Concrete for Minor Structures. Concrete pads shall not be used where the seasonal high water table will be less than 1 foot below the bottom of the concrete.

Geomembrane pad. If a synthetic liner is used, the pad area shall be excavated to a depth of one foot below the planned elevation and all sharp stones and other sharp material removed to prevent puncturing the liner. The liner should then be covered with one foot of soil free of stones, clods, etc. The geomembrane shall be a minimum thickness of 20 mils. Geomembrane pads shall not be used where the seasonal high water table will be less than 1.5 feet below the bottom of the geomembrane.

The pad shall be essentially level with only enough gradient away from the center of the pad to allow drainage of water.

All disturbed areas beyond the edges of the stacked manure shall be seeded to an approved vegetative cover as shown in the plan.

Waste utilization. Final disposition of manure/litter from waste storage areas must meet the requirements of NRCS conservation practice standard, Waste Utilization, Code 633.

CONSIDERATIONS

Long-term storage for periods of time greater than 30 days can be accomplished using permanent structures (NRCS conservation practice standard Waste Storage Facility, Code 313) or through a combination of permanent and temporary storage practices and/or better scheduling of manure/litter cleanout or removal of livestock confinement facilities.

Field storage areas may require land shaping, access roads, diversions, and such other practices as needed to protect the resource base.

Proper construction of the pad and maintenance of the covering should prevent leachate or percolation water through the stack and into the groundwater. The additional runoff from the covering should be considered in the water management around the stack.

Consider monitoring the temperature of the manure/litter stack to ensure temperature does not reach unsafe levels.

To facilitate the removal of manure/litter from the field storage area and prevent disturbance to the surrounding area, consider using a permanent pad such as concrete.

PLANS AND SPECIFICATIONS

Plans and specifications for field storage of manure/litter shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. Plans and specifications are to be prepared for specific field sites. Plans and specifications include construction plans, photographs, drawings, job sheets, construction specifications, narrative statements in conservation plans, and other similar documents.

Plans shall include as a minimum:

- A plan map showing the location of all storage areas, access roads to these areas, slopes, surfaces to be graded, necessary cuts and fills, and location of sensitive areas such as wells, springs, streams, and floodplains, setback distances from water bodies, streams, sinkholes, etc.
- Dimensions of field storage area including length, width, and freeboard.
- Maximum height for stacking manure/litter.
- Type of covering and details for anchoring the cover.
- Placement of spoil from excavation for the pad.
- Auxiliary practices such as access roads, diversions, waterways, subsurface drains, and vegetation as applicable.
- Vegetative requirements.

Copies of the plans and specifications shall be given to the landuser.

OPERATION AND MAINTENANCE

Soil pads may require maintenance and/or reconstructing if soil materials are inadvertently removed during the manure/litter removal process. The plastic or polyethylene covering will deteriorate over time and need to be replaced. The pad, cover, and adjacent area shall be inspected after each major storm event. Needed repairs shall be completed promptly.

Where geomembranes are used, care must be taken during removal of the manure/litter to not damage the geomembrane.

Concrete pads shall be checked for cracks after removal of manure/litter. Cracks shall be repaired immediately.

Areas disturbed as a result of removing the manure/litter shall be vegetated immediately.

The area surrounding the field storage area shall be maintained in such a manner to prevent ponding of water and to ensure runoff is diverted from the pad.

REFERENCES

NRCS Conservation Practice Standards
Critical Area Planting, Code 342
Waste Management System, Code 312
Waste Storage Facility, Code 313
Waste Treatment Lagoon, Code 359
Waste Utilization, Code 633
NRCS Construction Specification 32, Concrete for Minor Structures